

OMNITEC
CORPORATION

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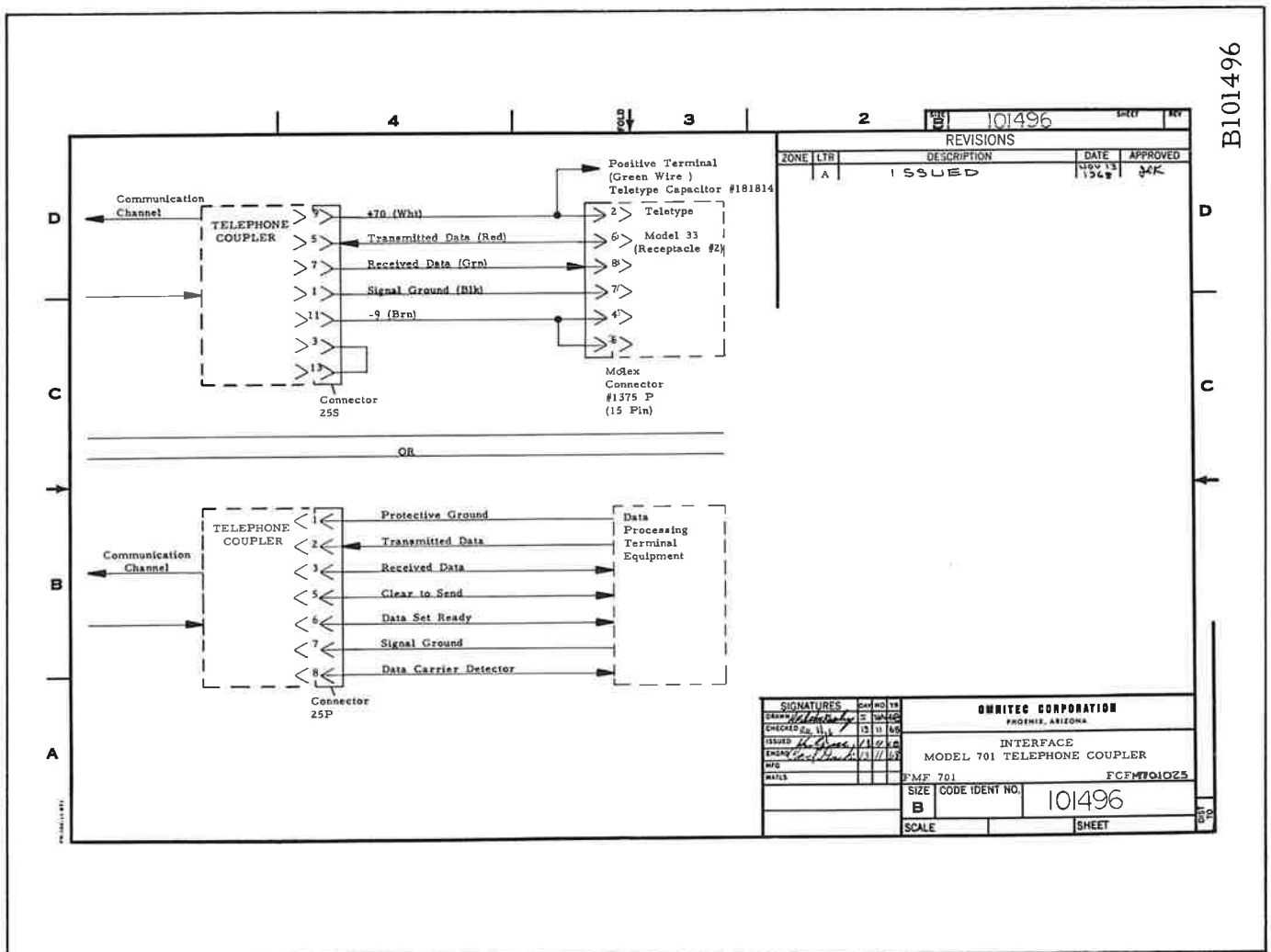
TECHNICAL SPECIFICATIONS,
INSTRUCTION, AND
MAINTENANCE MANUAL

MODEL 701A
TELEPHONE COUPLER

July 1969
M701035

Revision No. 1

This Revision, dated September 25, 1969, supercedes page 5, Fig. 1 (Interface Diagram) of the Model 701A Instruction Manual No. M701035.



Revision No. 2

Printed Circuit Layout, Fig. 3, Page 14,
Change R37 from 200K to 220K.
Change R65 to R64 & vice versa.
Change R16 on G2 to R61.

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OMNITEC SERIES - 701A TELEPHONE COUPLERS
TECHNICAL SPECIFICATION, INSTRUCTION &
MAINTENANCE MANUAL

1.0 GENERAL

1.1 Application. The use of a Telephone Coupler enables any tele-equipment or business machine to serve as a portable data terminal. Simply set the unit on a desk or table next to the telephone, connect to your device, and installation is complete. No external power supplies, no controls or adjustments; just place the hand set in the Telephone Coupler cushions, dial the computer or your remote station, and you are on line.

This compact OMNITEC Coupler converts binary data into selective tones, which are then transmitted over standard voice grade telephone lines. Conversely, this OMNITEC Telephone Coupler decodes selective audio tones into digital signals (either for teletype, or equipment with RS232 Interface).

Full duplex and half duplex operation is provided in the originate mode only. A Bell 103A2 Data Set or an OMNITEC Model 703 Auto/Answer Coupler may be used at the computer site to interface signals between the customer's telephone line and the computer.

2.0 FEATURES

2.1 High Noise Immunity. OMNITEC's TELEPHONE COUPLER is designed for maximum immunity to external noise and shock interference. The telephone handset rests in the Telephone Coupler's cone-shaped rubber cushions which gently cradle the mouthpiece and earphone so that disturbing mechanical vibrations and sounds are virtually inhibited from entering the handset. Furthermore, the Telephone Coupler case is carefully designed and constructed to eliminate mechanical and acoustic resonances in the operating frequency region.

3.2 Serviceability. This Telephone Coupler has been designed for ease of maintenance. Two (2) screws are all that need to be removed to dis-assemble the entire back panel. This exposes almost every area within the equipment needed for normal maintenance or adjustments. This design has a minimum number of adjustments, thereby simplifying maintenance. SEE FIG. 5 EXPLODED VIEW.

4.0 FUNCTIONAL SPECIFICATIONS

4.1 Equipment Compatibility. The 701A Telephone Coupler will operate on any standard telephone provided that the handset is physically equivalent to Western Electric company's "office-type".

4.2 Operation. In order to initiate operation, the telephone receiver is placed into the Telephone Coupler's cushions, power is turned on, and the desired destination is dialed. As soon as the carrier tone is received, the sense circuitry in the Telephone Coupler disables all of its noise override controls, and the unit is ready for two-way communication.

4.3 Full and Half Duplex Operation. The Telephone Coupler can operate in two (2) modes: Full or Half Duplex. The full duplex operation separates the transmitter of the unit from its receiving circuit, which means that a terminal, such as a teletype, can be used simultaneously for receiving of one message, while transmitting another. This operating mode is selected by means of a rear mounted slide switch. In the case of the half duplex mode, the transmission is identical with the terminal readout.

5.0 ELECTRICAL SPECIFICATIONS

5.1 Power Requirement

Voltage: 117V $\pm$ 15%, 60 cycle $\pm$ 1%, single phase,

Current: 200 milliamps

5.2 Information Characteristics. The tone frequencies of the Telephone Coupler are:

Transmitting: 1070 cps for space; 1270 for mark

Receiving: 2025 cps for space; 2225 for mark

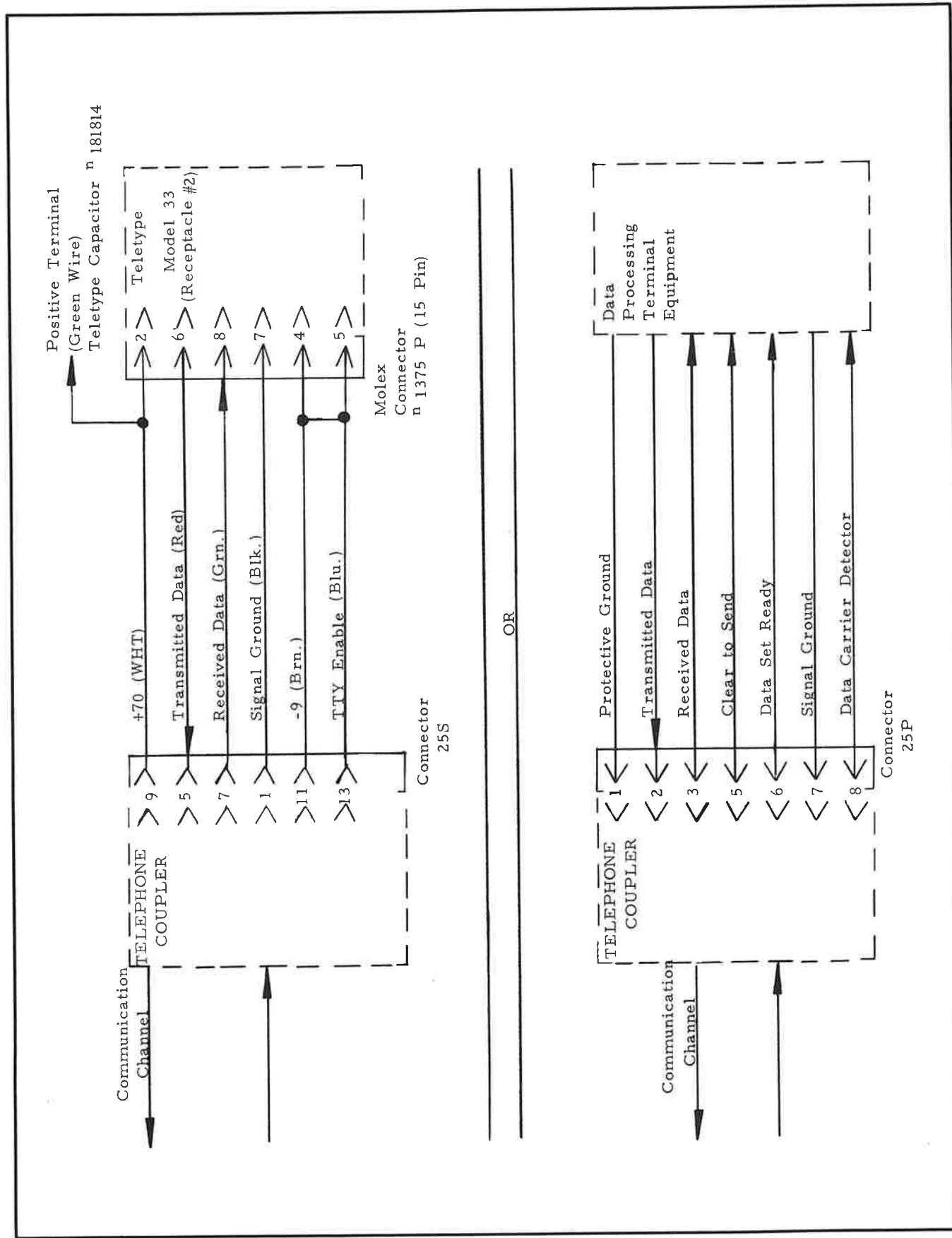


Fig. 1 Interface Diagram

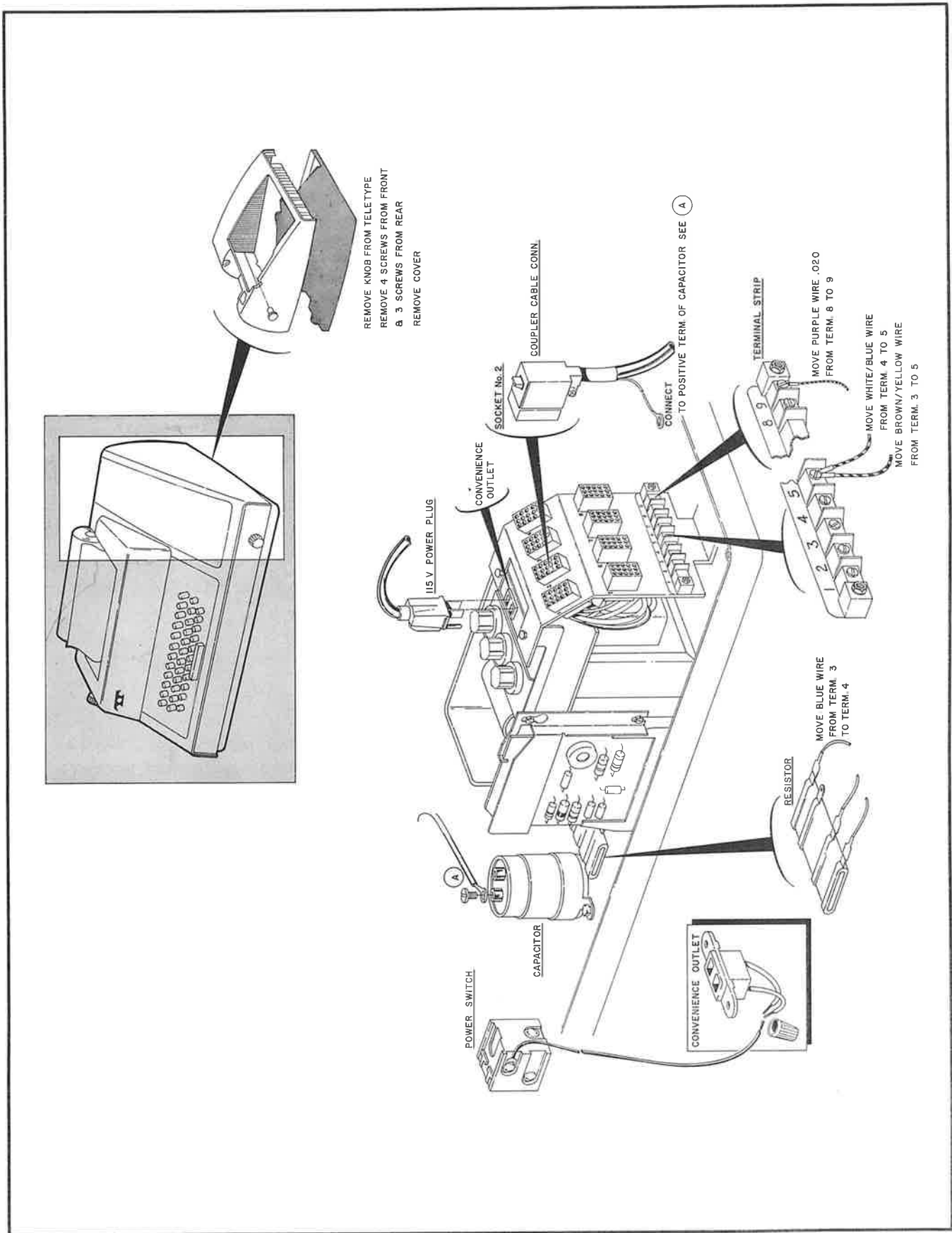
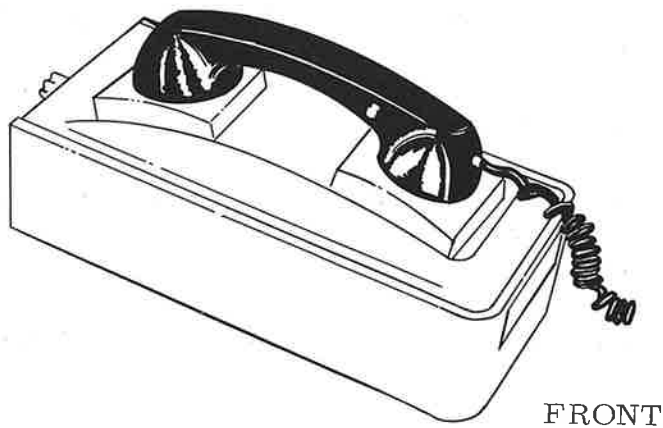


Fig. 2 Teletype Modification

8.3 Operation of Your TELEPHONE COUPLER.

- 8.3.1 Turn on TELEPHONE COUPLER power switch (to the right).
- 8.3.2 Turn TTY to line position. If other equipment is used with coupler set it up to operate on line. (May be labeled "remote operation").
- 8.3.3 Place telephone handset firmly into TELEPHONE COUPLER making sure that the cord is at the front of the TELEPHONE COUPLER.



- 8.3.4 The ACST/TEL. Terminal switch on rear of coupler must be in the ACST. position.
- 8.3.5 Dial Computer.

NOTE: If direct coupling to telephone line is desired, switch ASCT/TEL. Terminal to TEL. TERM. and connect cable from telephone terminal jack to a telephone outlet installed by the telephone company for direct coupling to telephone line.

10.0 MAINTENANCE

If a problem does occur and cannot be diagnosed by your technicians, or if you prefer that repairs and adjustments be made by OMNITEC, the Telephone Coupler should be sent to the OMNITEC service center at 903 North Second Street, Phoenix, Arizona 85004.

In the event of operational failure, and before calling an electronic technician, check to see that the Telephone Coupler cable is correctly attached to both the Coupler and the Teletype units. Also, inspect the fuse located on the rear panel adjacent to the Telephone Coupler cable.

Easy entry to the interior of the case is achieved by removing the two (2) screws at the rear of the unit. The base plate and top are removed together from the aluminum extrusion by slowly pulling them to the rear. The top can then be turned over and placed on the bench along side the base plate. The transmitter and receiver leads can be left attached to the printed circuit board during servicing.

Occasional errors in print out can be caused by a slightly misadjusted teletype, or by noise getting into the coupler by not having the telephone handset seated firmly in the cushions. If the telephone handset does not want to slide into cushions easily, clean cushions with a dry cloth and apply a very thin coat of clear silicone rubber lubricant.

Transistor Z-5 Silicone Compound, No. 8101 manufactured by the G.C. Electronics Company is adequate for this purpose.

After applying a thin coat of lubricant, remove all excess with a clean, dry cloth.

DO NOT USE GREASE OR OIL for this purpose.

10.1. Test and Adjustments

10.1.1 Power Supply Voltage:

Cathode CR4 & E9 (GND)	+9 volt supply $+9.0 \pm 0.5$ vdc
Anode CR5 & E9 (GND)	-9 volt supply -9.0 ± 0.5 vdc
Anode CR21 & E9 (GND)	-12 volt supply -12.0 ± 0.6 vdc

NOTE: Be sure scope and counter is isolated from ground before connecting ground to E2 or any other point above ground.

12.0 WARRANTY

OMNITEC CORPORATION warrants to the original user, that this product be free from defects in workmanship and material for a period of one year from the date of installation. OMNITEC's repair and replacement part service, under this warranty, is limited to correcting without charge at its factory any part or parts thereof which shall be returned to its factory, transportation prepaid, and upon examination by OMNITEC shall disclose to have been originally defective.

OMNITEC operates a Service Center at 903 North Second Street, Phoenix, Arizona 85004. TELEPHONE COUPLERS which are returned by the customer to OMNITEC for repair will be repaired and returned with a maximum in-plant turn around time of 2 days. Service and shipping charges will be billed to the customer.

OMNITEC shall not be liable for loss or damages caused either directly or indirectly by use of this produce. This warranty supersedes and is in lieu of all others expressed or implied. No other liabilities may be assumed unless authorized in writing by the OMNITEC CORPORATION.

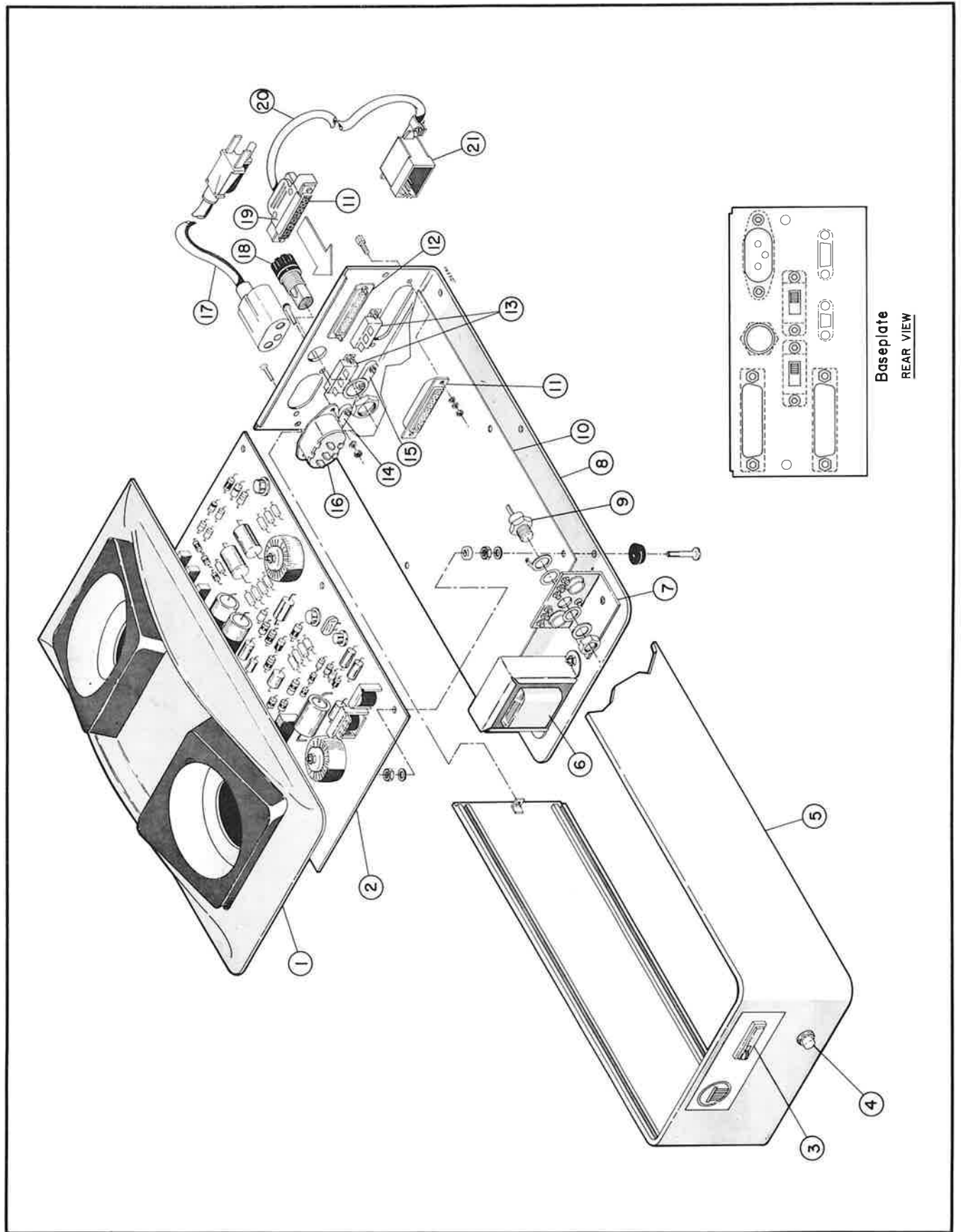


Fig. 4 "Exploded View"

TABLE 1. REPLACEMENT PARTS LISTS

<u>ITEM</u>	<u>NAME</u>	<u>IDENTIFICATION</u>
22-25.	Transistor Q12, Q13, Q14	ZN4060
22-26.	Transistor Q1, Q3, Q8	ZN2925
22-27.	Transistor Q4, Q5, Q6, Q7, Q10, Q11	ZN3607
22-28.	Transistor Q2	ZN4062
22-29.	Transistor Q9	MPS A12
22-30.	Bridge	D101936P30
22-31.	Integrated Circuit A2-A5, A1	D101936P31
22-32.	Diode CR6, CR10, CR15	D101936P32
22-33.	Diode CR1, CR2, CR7, CR9, CR11, CR14 CR16, CR20, CR24, CR25, CR26	D101936P33
22-34.	Diode CR4	D101936P34
22-35.	Diode CR5	D101936P35
22-36.	Resistor 10 ohm, 5%, 3W R35	
22-37.	Resistor 68 ohm, 5%, 2W R34	
22-38.	Resistor 100 ohm, 5%, 2W R36	
22-39.	Resistor 6.8K, 5%, 1/2 W R61	
22-40.	Resistor 510 ohm, 5%, 1/2W R81	
22-41.	Resistor, Trim 200 ohm, 10% R20	
22-42.	Resistor, Trim 500 ohm, 10% R7	
22-43.	Resistor, Trim 1K, 10% R10	
22-44.	Resistor, Trim 5K, 10% R21	
22-45.	Resistor, Film 27.4K, 1%, 1/2W R12	
22-46.	Resistor, Film 4.75K, 1%, 1/2W R2	
22-47.	Resistor, Film 221 ohm 1%, 1/2W R9	
22-48.	Resistor, Film 1.62K, 1%, 1/2W R6, R14	
22-49.	Resistor, Film 182K, 1%, 1/2W, R13	
22-50.	Resistor, Film 1%, 1/2W, R8	
22-53.	Resistor 7.5 ohm, 5%, 1/4W R16	
22-54.	Resistor 33 ohm, 5%, 1/4W R80	
22-55.	Resistor 68 ohm, 5%, 1/4W R65, R78	
22-56.	Resistor 220 ohm, 5%, 1/4W, R79	
22-57.	Resistor 360 ohm, 5%, 1/4W, R11, R60	
22-58.	Resistor 470 ohm, 5%, 1/4W, R64	
22-59.	Resistor 750 ohm, 5%, 1/4W, R25	
22-60.	Resistor 820 ohm, 5%, 1/4W, R19	
22-61.	Resistor 1K, 5%, 1/4W, R68, R69, R73, R75	
22-62.	Resistor 1.6K, 5%, 1/4W R27, R28, R32	
22-63.	Resistor 4.7K, 5%, 1/4W R15, R56, R57, R58, R59, R70 R74	
22-64.	Resistor 5.6K, 5%, 1/4W R76	
22-65.	Resistor 10K, 5%, 1/4W R41, R42, R49, R53, R62	
22-66.	Resistor 15K, 5%, 1/4W R66, R71	
22-67.	Resistor 22K, 5%, 1/4W R4, R50	
22-68.	Resistor 27K, 5%, 1/4W R5	

